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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,350	06/23/2003	Jonathan H. Connell	YOR920030166US1	7454

7590 06/08/2005  
Ryan, Mason & Lewis, LLP  
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EXAMINER

ARMSTRONG, ANGELA A

ART UNIT PAPER NUMBER

2654

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/601,350	<b>Applicant(s)</b> CONNELL ET AL.	
	<b>Examiner</b> Angela A. Armstrong	<b>Art Unit</b> 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/29/03;3/12/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1-22 are rejected under 35 U.S.C. 102(a) as being anticipated by Garg et al, “Frame-dependent multi-stream reliability indicators for audio-visual speech recognition,” Proceedings of International Conference on Acoustics, Speech and Signal Processing, ICASSP 2003, vol. 1, April 2003, pages 24-27.
2. Regarding claim 1, Garg teaches a method for audio-visual speech recognition comprising the steps of: selecting between an acoustic-only data model and an acoustic-visual data model based on a condition associated with a visual environment (pages 24-26; section 2, entitled “The Multi-Stream HMM”; section 3, entitled “Stream Reliability Indicators”; section 4, entitled “Reliability Based Stream Exponents.”); and decoding at least a portion of an input spoken utterance using the selected data model (pages 24-26; section 2, entitled “The Multi-Stream HMM”; section 3, entitled “Stream Reliability Indicators”; section 4, entitled “Reliability Based Stream Exponents”; Tables 1-2).

Regarding claim 2, Garg teaches storing the acoustic-only data model and the acoustic-visual data model in memory such that model selection is made by shifting one or more pointers to one or more memory locations where the selected model is located (Page 26-27, section 5, “Database and Experiments”).

Regarding claim 3, Garg teaches model selection is based on a likelihood ratio test (pages 24-26; section 2, entitled “The Multi-Stream HMM”; section 3, entitled “Stream Reliability Indicators”; section 4, entitled “Reliability Based Stream Exponents”).

Regarding claim 4, Garg teaches model selection comprises selecting the acoustic-only data model when a result of the likelihood test is not greater than a threshold value (pages 24-26; section 2, entitled “The Multi-Stream HMM”; section 3, entitled “Stream Reliability Indicators”; section 4, entitled “Reliability Based Stream Exponents”).

Regarding claim 5, Garg teaches the model selection step comprises selecting the acoustic-visual data mode when a result of the likelihood test is not less than a threshold (pages 24-26; section 2, entitled “The Multi-Stream HMM”; section 3, entitled “Stream Reliability Indicators”; section 4, entitled “Reliability Based Stream Exponents”).

Regarding claim 6, Garg teaches the threshold value is based on a cost associated with a recognition error (Tables 1 and 2; section 3, “Stream Reliability Indicators”).

Regarding claim 7, Garg teaches the likelihood ratio test is based on one or more observations of a given visual feature (Tables 1 and 2; section 3, “Stream Reliability Indicators”).

Regarding claim 8, Garg teaches the given visual feature is associated with the mouth region of a speaker of the input utterance (Page 26-27, section 5, “Database and Experiments”).

Regarding claim 9, Garg teaches the model selection is performed at a rate substantially equivalent to an observation rate associated with the audio-visual speech recognition system (Page 26-27, section 5, “Database and Experiments”).

3. Regarding claims 10-22; claims 10-22 are similar in scope and content to method claims 1-9 and are therefore rejected under similar rationale.

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*Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Erten (US 2002/0116197 A1) discloses an audio-visual speech processing system for recognizing and enhancing speech by fusing audio and visual speech recognition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A Armstrong  
Examiner  
Art Unit 2654

AAA  
May 19, 2005

*Angela A. Armstrong*